Mindset of a Heart Transplant –

Arizona Mainframe Managed Services

Category: State CIO Office Special Recognition

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State of Arizona

Project Initiation and Completion Dates:

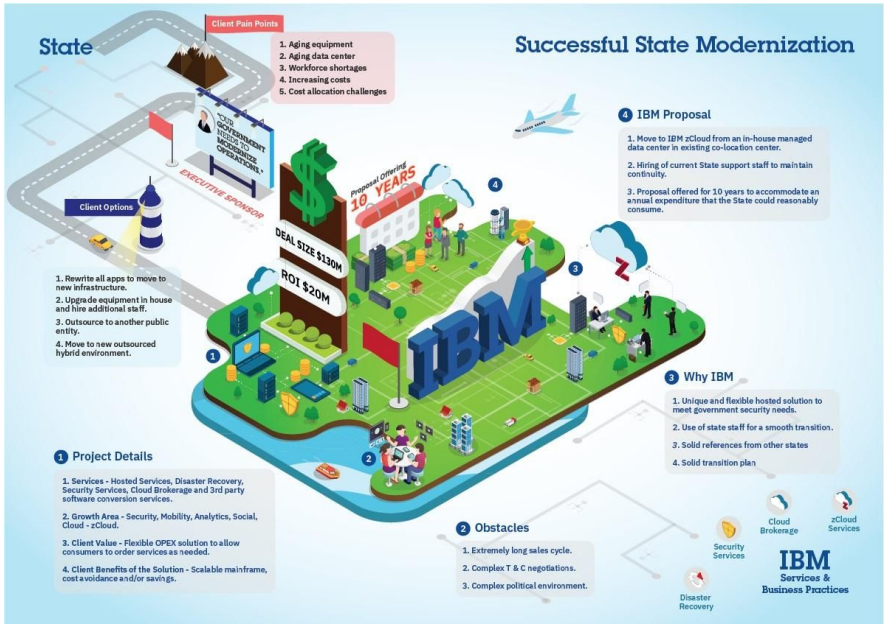
June 2017 – December 2017

NASCIO 2018

Executive Summary

On January 5, 2015, Governor Doug Ducey was sworn into office as the 23rd governor of the State of Arizona – inheriting a $1 billion budget deficit. With a mission to make Arizona the best State in the country to live, work, do business and get and education, Governor Ducey and his State leaders went to work looking for more efficient, cost effective methods to provide services to constituents. As the new vision was set for the Department of Administration (DOA) Arizona Strategic Enterprise Technology (ASET), CIO Morgan Reed worked through an innovative purchasing model to establish a more agile method to procure major towers of IT innovation. As part of that purchasing model, the first tower of service tested in that environment was modernization of ASET mainframe services for the agencies.

The challenges of maintaining and operating a mainframe environment for the State of Arizona were somewhat daunting. As with other public organizations, the State had the issues aging equipment, workforce shortages, and increasing costs. However, Arizona's challenges were compounded by a requirement to move out of their aging data center, as well as the cost allocation difficulties as agencies moved workloads to other environments. The State needed a solution and they needed to be able to make the move quickly and seamlessly.



The solution proposed to and accepted by the State was a move to an outsourced, hybrid environment. Continuity in support was maintained by the hiring of the State staff into the bidder's environment. The new environment also provided the scalability of service that the State needed to manage the "last man standing" scenario that exists in a client owned setting for cost allocation.

A solid project plan led to an ideally uneventful cutover. Client agencies are routinely seeing 4 times or better performance improvements.

Although the chart above is not the EXACT roadmap of the Arizona Innovation, it depicts the type of successful modernization that this project took on. We believe that Arizona is the first State that has taken this innovative approach to modernizing mainframe services and moving both mainframe and disaster recovery to a cloud environment.

PROJECT NARRATIVE

The State of Arizona had an existing mainframe environment that was experiencing many of the same problems of other public organizations; aging equipment, workforce shortages and increasing costs. However, Arizona's challenges were compounded by a requirement to move out of their aging data center, as well as the cost allocation issues as agencies moved workloads to other environments. The State was looking for a solution and they needed to make the move quickly and seamlessly.

A statement of work was issued outlining five key high level service objectives:

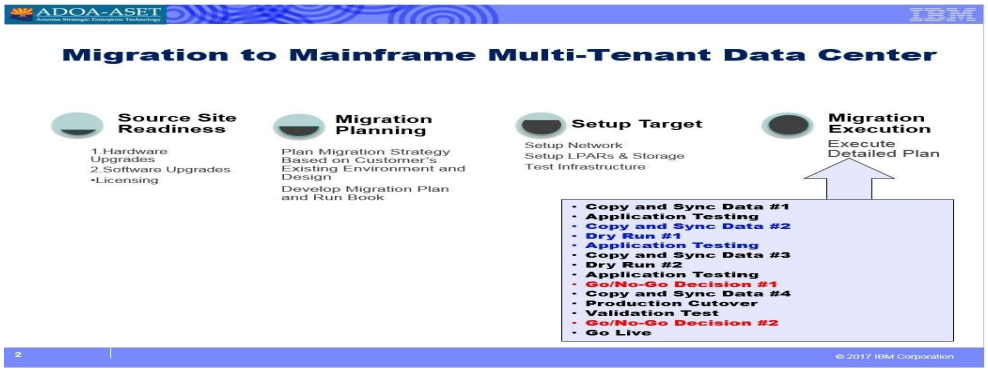
- Meet State of AZ business needs for highly Available, reliable, scalable and secure Services;
- Conform to State of AZ policy, industry standards and government regulations (e.g., security and data protection);
- Deliver Services with Availability guarantees backed by Service Level Requirements (SLRs);
- Deliver Services that can leverage operational scale and best practices to achieve optimum commercial price performance;
- Deliver ongoing feedback mechanisms to ensure performance meets expectations.

Additionally, the State was looking for a partner that would understand that skilled people are key to the success of this project. The successful contractor would be required to acquire the State Mainframe resources FTE's, 28 in total at the time of the issuance of the SOW, addressing attrition concerns and accelerating knowledge sharing. Integration of these mainframe technical and operations team members into the contractor's transition and delivery team putting the discovery efforts, knowledge transfer, and technical design components of the project on a fast track.

The State was using a process to acquire services that had pre-qualified contractors for specific towers of work on a set of projects for Arizona. Based on the previous pre-qualification, there were three contractors invited to issue responses to the mainframe Statement of Work. IBM proposed a move of the entire Arizona mainframe environment to the IBM Mainframe as a Service (MFaaS) environment in Boulder, Colorado, with a disaster recovery site at the IBM facility in Raleigh, North Carolina. After an extensive series of Q&A, oral interviews and approval through the Arizona Information Technology Authorization Committee, IBM was awarded the contract in mid-June of 2017.

The award was for an innovative managed services solution for mainframe environments that included managed operations, security, maintenance, capacity and performance management, and other services – making this a first of its kind for State Governments. The scope of work and service responsibilities were determined based on the State's request and a truly collaborative design of a solution. Service levels and performance metrics for the State of Arizona were determined based on State requirements, the environment specifics, and solution components. The State of Arizona Data Center Services were transitioned from in-house resources to support by a team of US-based mainframe professionals that included the existing Arizona mainframe FTE's.

The project had several moving parts that needed to be managed simultaneously by both the State and IBM. Re-badging of the employees, documentation of background checks for all staff associated with the project, building of the environment for the State in Boulder and Raleigh, and replication of the Arizona environment.



Migration involves meticulous planning and a clear demarcation of responsibilities and tasks. A mainframe refresh on the scale of the Arizona project needed to be done with a "heart transplant" mindset, including all the responsibility that that statement conveys. The first step is creating a strong project management plan and knowledge capture. This plan provided structure and transparency for all participants to the tasks and timings of this transition. The tasks included items that would capture tribal knowledge of the team, network connectivity, set up of target production mainframe environment, testing, security and compliance, and steady state. Dry runs are also crucial to a successful migration. They are iterative by design and allow for continued improvement for identified gaps in the plans and provide opportunities for risk mitigation. Once completed, the dry runs shed new light on the amount of down time needed for final cutover. Each step along the way was a collaborative effort and the true definition of partnership for both parties.

Another innovative piece of this project was the actual migration. There were seven agencies involved in the migration to the new environment. Typically, most migrations of this type are handled agency by agency. However, as the team looked at the complexities of the migration, the possibility that it may not be technically possible to isolate the agencies or the various constituencies, and the need to support two environments, the team agreed to a single migration of all seven agencies. In January 2018, all of the agencies transitioned successfully into the new managed services environment and the project went into steady state.

Concept

The State of Arizona had a goal to close their data center within a twelve month period. Initially the State of Arizona's concept for the mainframe was to have a contractor manage their environment in a local data center, relieving the State of both the physical housing of the equipment, and the expenditures associated with housing that equipment. As the proposals were evaluated, the concept of a managed service with the mainframe in the cloud was introduced that the State wanted to explore further.

One could argue that other States have moved their mainframe infrastructure to the cloud. However, this project was not merely a business process improvement, but the use of an emerging technology for services that affect hundreds of thousands of citizens using the services of the State of Arizona. This project was not Infrastructure as a Service (IaaS) used by a client, but a full use of managed services where the State continues to own the applications, but the provider is responsible for managed operations, security, maintenance, capacity and performance management, and other services. The Arizona project is a model on how managed services should be done.

Significance and Impact
The State of Arizona considers this to be a highly successful project, with many benefits including an immediate improvement in performance. Recently, the State's largest agency on the mainframe reported that a monthly job that historically took three and a half days to complete, finished in just 17 hours. Reports of 80% reductions in job processing time are commonly reported by the State's mainframe customers. These gains were realized by moving to an environment with a higher performing disk subsystems.

The State realized many additional significant internal impacts. With the re-badging of existing staff to IBM, the State saw an immediate reduction in personnel costs and the associated expenses with these positions. This approach kept the tribal knowledge of the account, equipment and systems available for the State during the transition and beyond.

Managed services are purchased as needed by the State, lowering capital expenditure costs. Rather than the previous method of purchasing equipment and software in anticipation of future demand, managed services allows the State to increase and decrease capacity as required. These services are billed as acquired and by entity as defined by the State, eliminating the need for a capital expenditure and excess capacity.

Challenges with cost allocation are also lessened. Managed services are billed on a usage basis by entity acquiring the service. This methodology meets the federal cost allocation requirements, removing the burden of setting a rate for service that meets Federal A-87 requirements.

But the most significant impact is to the citizens using these services.

Arizona Health Care Cost Containment System (AHCCCS)- All benefit application process and authorization, provider payouts processing:

Founded in 1982, the Arizona Health Care Cost Containment System (written as AHCCCS and pronounced 'access') is Arizona's Medicaid program. Medicaid is a federal healthcare program jointly funded by the federal and state governments for individuals and families who may qualify for acute or long-term services.

Built on a system of competition and choice, AHCCCS is a $12 billion program that operates under an integrated managed care model, through a Research and Demonstration 1115 Waiver. Contracted health plans coordinate and pay for medical services delivered by more than 70,000 health care providers for 1.9 million individuals and families in Arizona.

Arizona Department of Transportation:

- Driver Services
  - Driver License Information
    - Arizona Voluntary Travel ID
    - Driver License Classes and Types
    - Authorized Third Party Driver License Locations
    - Motorcycle License
    - Commercial Driver License
    - Teen Drivers
    - Tests, Manuals and Driving Schools
    - License Reinstatement

    - Ignition Interlock
    - Military Personnel
    - Medical Review
- Vehicle Services
    - Registration
    - Commercial Vehicle Registration
    - Title
    - Insurance Information
    - Plates and Placards
    - Buying and Selling Your Vehicle
- Motor Carrier Services
    - Motor Carrier Licensing

Arizona Department of Corrections

- offender management System
- Inmate Visitation Authorization System

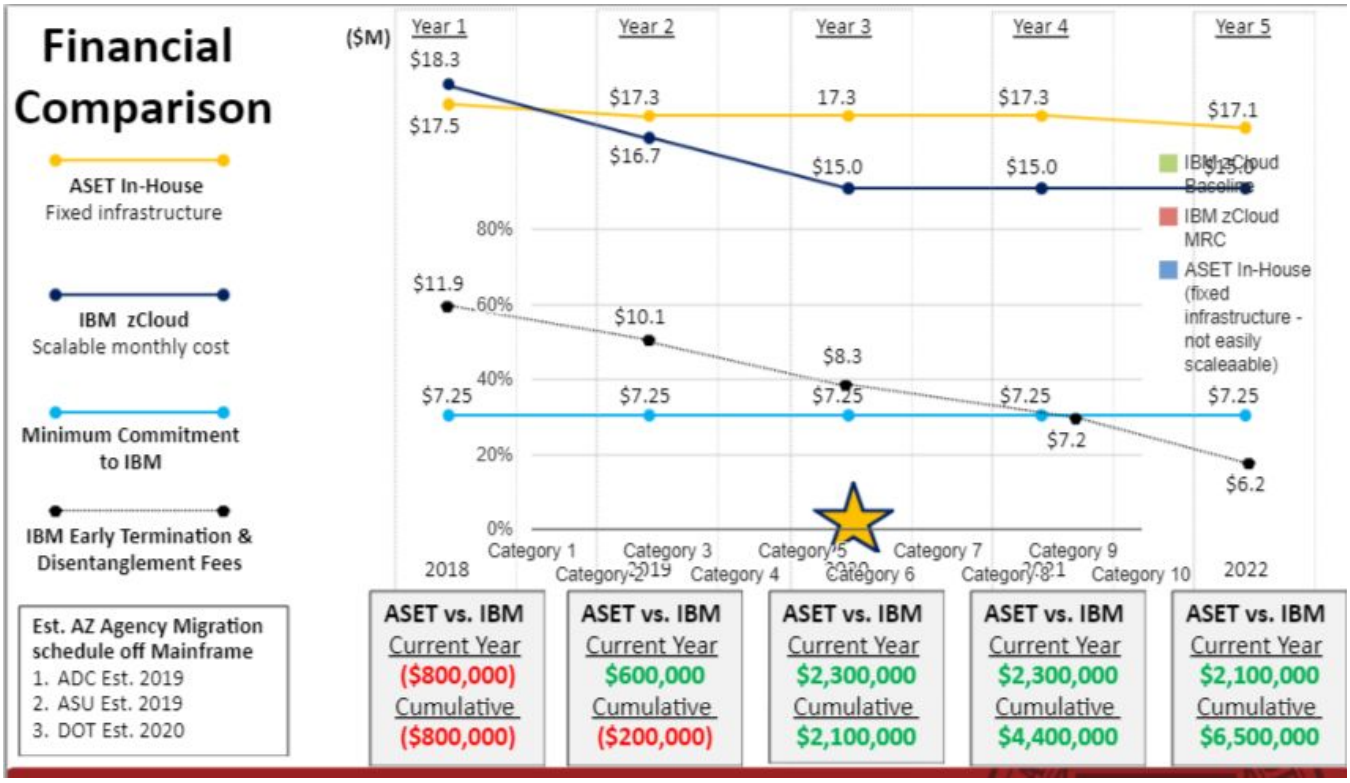
Arizona Department of Revenue

- Audit processing both individual/ corporate tax returns,
- storing federal tax information,
- processing refunds for various

Arizona State University

- Financial system

Financial Comparison



ASET In-House
Fixed infrastructure

IBM zCloud
Scalable monthly cost

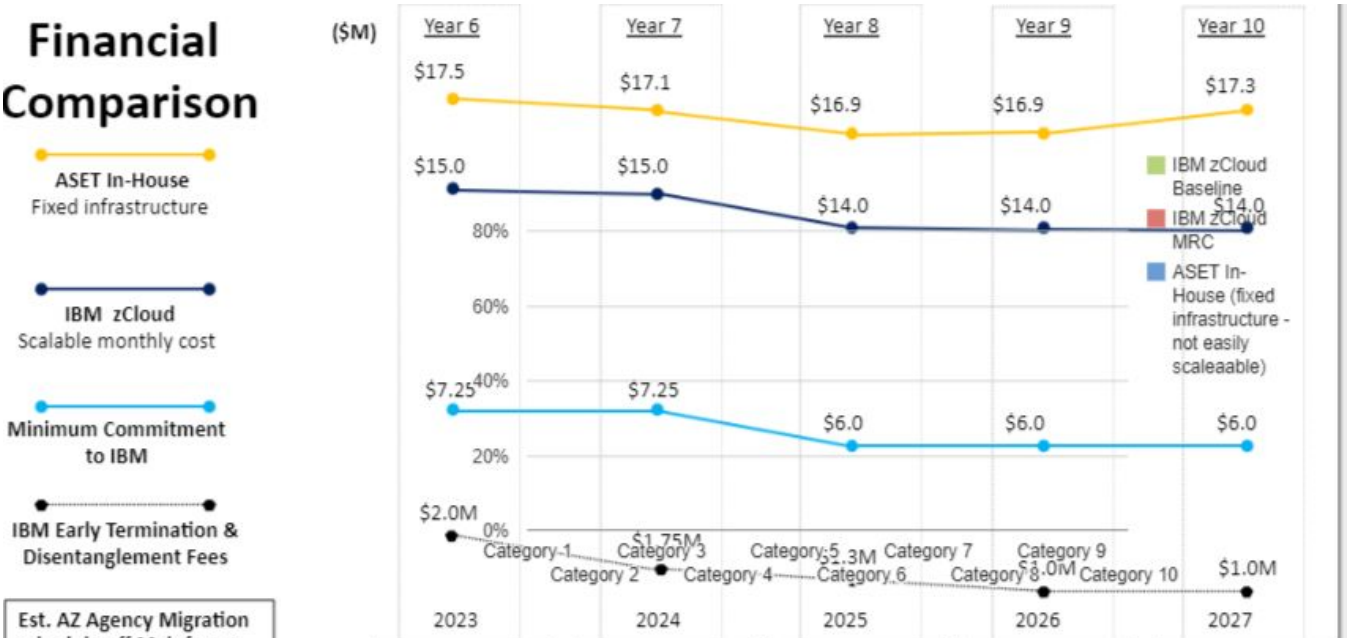
Minimum Commitment to IBM

IBM Early Termination & Disentanglement Fees

Est. AZ Agency Migration schedule off Mainframe
1. ADC Est. 2019
2. ASU Est. 2019
3. DOT Est. 2020

ASET vs. IBM	ASET vs. IBM	ASET vs. IBM	ASET vs. IBM	ASET vs. IBM
Current Year	Current Year	Current Year	Current Year	Current Year
($800,000)	$600,000	$2,300,000	$2,300,000	$2,100,000
Cumulative	Cumulative	Cumulative	Cumulative	Cumulative
($800,000)	($200,000)	$2,100,000	$4,400,000	$6,500,000

Financial Comparison



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ASET vs. IBM	ASET vs. IBM	ASET vs. IBM	ASET vs. IBM	ASET vs. IBM
Current Year	Current Year	Current Year	Current Year	Current Year
$2,500,000	$2,100,000	$2,900,000	$2,900,000	$3,300,000
Cumulative	Cumulative	Cumulative	Cumulative	Cumulative
$9,000,000	$11,100,000	$14,000,000	$16,900,000	$20,200,000

ADOA-ASET